

ACCESSION NR: AP4034035

essential features of the structure were similar to those observed previously
by the authors during the aging of Ni-Be and Cu-Be. Orig. art. has: 4 figures.

ASSOCIATION: None

SUBMITTED: 06Nov63

DATE ACQ: 20May64

ENCL: 00

SUB CODE: SS,MM

NO REF SOV: 004

OTHER: 004

Card 2/2

TYAPKIN, Yu.D., Cand Phys-Math Sci — (diss) "X-ray-structu-
ral study of ^{the} aging of nickel alloys." Mos, 1959. 15 pp (Glavni-
proyekt under Gosplan USSR. Central Sci-~~ence~~ ~~Research~~ Inst of
Ferrous Metallurgy). 150 copies. Bibliography at end of text
(KL, 39-59, 101)

//

ACC NR: AR6013666

SOURCE CODE: UR/0058/65/000/010/E031/E031

AUTHOR: Gavrilova, A. V.; Tyapkin, Yu. D.

TITLE: Changes in crystal structure with age hardening in nickel-beryllium and copper-beryllium alloys

SOURCE: Ref. zh. Fizika, Abs. 10E241

REF SOURCE: Sb. tr. In-t metalloved. i fiz. metallov Tsent. n.-i. in-ta chernoy metallurgii, vyp. 36, 1964, 326-354

TOPIC TAGS: hardness, strain hardening, beryllium containing alloy, metal aging

TRANSLATION: Be atoms collect into monatomic layers parallel to the crystallographic planes of the [100] matrix in the initial hardening stages of Cu-Be (150-200°C) and Ni-Be (400-450°C) (Guinier-Preston zones). When the Guinier-Preston zones combine with the surrounding matrix, a mixing of atoms occurs in the matrix which can be represented as an elastic shift in the [110] planes in the [110] direction. These shifts produce "monoclinic" changes in the initial cubic lattice. A metastable phase occurs in the alloys when the time lag increases or the hardening temperature rises to 300°C (for Cu-Be) and 500°C (for Ni-Be) due to an extension of the Guinier-Preston zone. The structural relationship between the metastable phase and the solid solution is similar to that between ordered and unordered phases in the ordering of an AuCu alloy. The

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ACC NR. AR6013666

"monoclinic" changes in the matrix with the aging of Ni-Be and Cu-Be alloys are due to the character of the stress state in submicrovolumes of the alloy and to the anisotropy of the elastic constants of the cubic matrix. Large elastic distortions (stresses) with the aging of Ni-Be and Cu-Be alloys do not considerably increase their hardness. The hardness increases only at the stage at which these stresses begin to turn in the blocks of the matrix solid solution. 30 references. I. Tulupova.

SUB CODE: 11

Card 2/2

GAVRILOVA, A.V.; TYAPKIN, Yu.D.

Investigating the aging of martensite in iron-nickel alloys with
additions of aluminum. Fiz. met. i metalloved. 20 no.2:313-315
Ag '65. (MIRA 18:9)

1. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metal-
lurgii imeni I.P.Bardina.

L 1939-66 ENT(m)/EWP(w)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c) LJP(c) MJW(CL)/JD/HM
 ACCESSION NR: AP5021946 UR/0126/65/020/002/0313/0315
 548.53

AUTHOR: Gavrilova, A. V.; Tyapkin, Yu. D.

TITLE: Aging of martensite of iron-nickel alloys having aluminum additions

SOURCE: Fizika metallov i metallovedeniye, v. 20, no. 2, 1965, 313-315

TOPIC TAGS: iron base alloy, nickel containing alloy, aluminum containing alloy,
 iron nickel aluminum alloy, maraging alloy, maraging steel

ABSTRACT: Three iron-base alloys, containing 8 Ni-1.5 Al, 29 Ni-2.0 Al, and 29 Ni-3.5 Al, were investigated in order to determine the mechanism of structural changes responsible for the significant strength increase under the effect of heat treatment. The specimens were cooled to -196C and aged at 400-450C. Aging brought about precipitation of a secondary phase having a CsCl-type structure and a composition close to (Fe, Ni)Al. This phase then decomposes in two phases: NiAl and α -Fe. In spite of the small change in volume, the decomposition causes significant strengthening. Orig. art. has: 1 table. [WW]

ASSOCIATION: TsNIICHERMET im. I. P. Bardina

Card 1/2

L 1939-66

ACCESSION NR: AP5021946

SUBMITTED: 13Jul64

ENCL: 00

SUB CODE: MM

NO REF SOV: 007

OTHER: 001

ATD PRESS: 415

mca
Card 2/2

RABIN'KIN, A.G., TYAPKIN, Yu.D., YAMALEYEV, K.M.

Changes in the crystal structure and magnetic properties of the
Co-Pt alloy in the ordering process. Fiz. met. i metalloved. 19
no.3:360-366 Mr '65. (MIRA 18:4)

1. Filial Instituta khimicheskoy fiziki AN SSSR i Tsentral'nyy
nauchno-issledovatel'skiy institut Chernoy metallurgii imeni Bardina.

TYAPKIN, Yu.D.; YEROSHENKOV, I.G.

Modulated periodic structure in magnetic Fe - Ni - Al base alloys
with a body-centered cubic lattice. Dokl. AN SSSR 160 no.2:325-
328 Ja '65. (MIRA 18:2)

1. Tsentral'nyy nauchno-issledovatel'skiy institut chernoy me-
tallurgii im. I.P. Bardina. Submitted July 10 1964.

"APPROVED FOR RELEASE: 08/31/2001

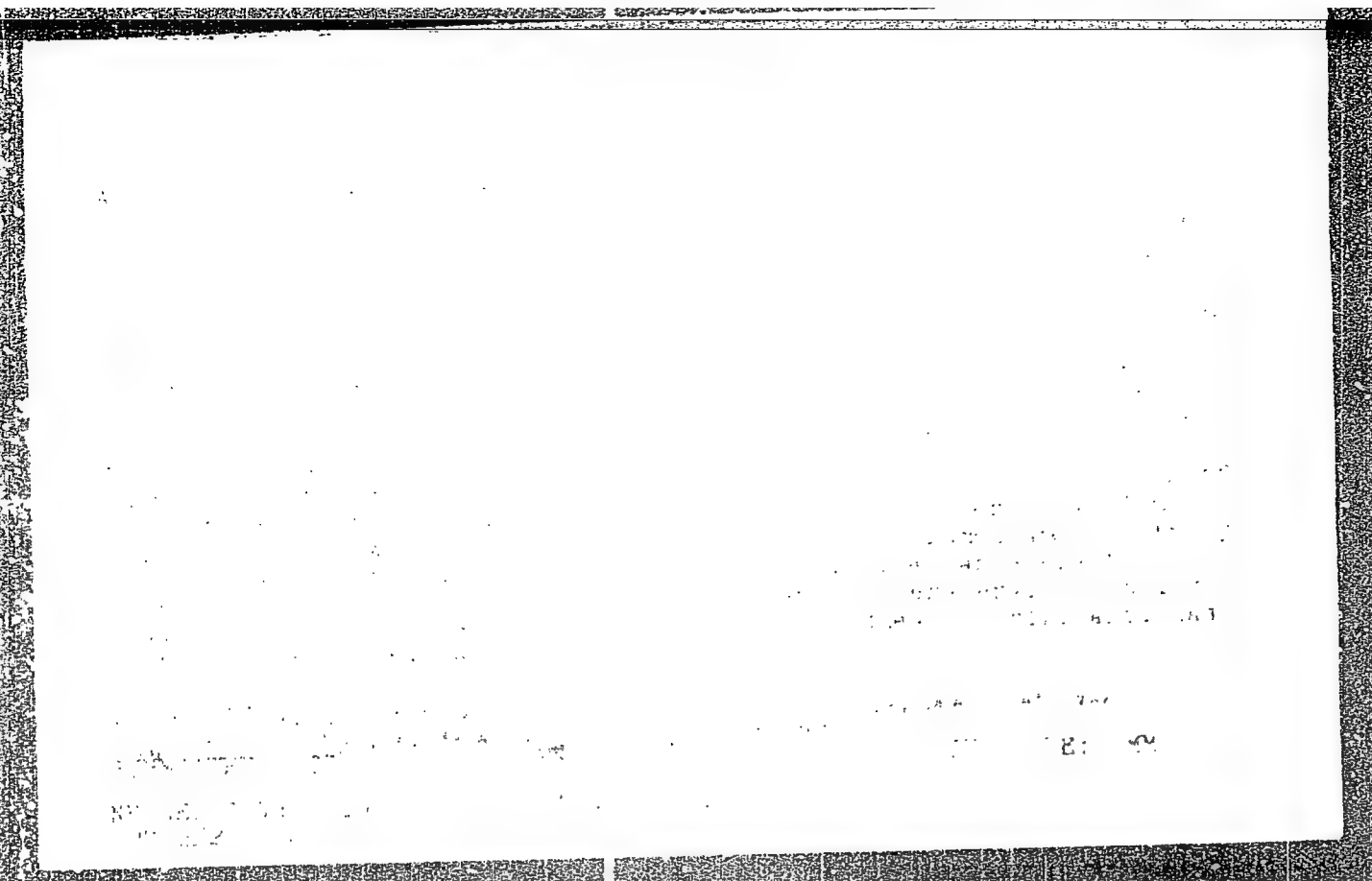
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APPROVED FOR RELEASE: 08/31/2001

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APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001757710012-0"

TYAPKIN, Yu.D.; YAMALEYEV, K.M.

Character of crystal lattice defects at the initial stage of ordering
of a CoPt alloy. Dokl. AN SSSR 155 no.6:1310-1313 Ap '64.
(MIRA 17:4)

1. Predstavleno akademikom G.V.Kurdyumovym.

YAMALEYEV, K.M.; TYAPKIN, Yu.D.

X-ray examination of structural changes during the ordering of
single crystals of the NiPt alloy. Fiz. met. i metalloved. 19
no.1:141-144 Ja '65. (MIRA 18:4)

1. Institut metallofiziki Tsentral'nogo nauchno-issledovatel'nogo
instituta chernoy metallurgii imeni Bardina.

"APPROVED FOR RELEASE: 08/31/2001

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increase in activity level, resulting in a continuous reduction in activity level. These fluctuations also cause a continuous reduction in activity level.

These are the main factors which cause a continuous reduction in activity level.

"APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001757710012-0

APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001757710012-0"

ACCESSION NR: AP4013329

S/0020/64/154/003/0578/0581

AUTHOR: Tyapkin, Yu. D.

TITLE: "Monoclinic" distortion of the cubic lattice during the aging of Ni-Be and Cu-Be alloys

SOURCE: AN SSSR. Doklady*, v. 154, no. 3, 1964, 578-581

TOPIC TAGS: cubic lattice distortion, aging, Ni-Be alloy, Cu-Be alloy, nickel berillium, copper berillium

ABSTRACT: In the investigation of the nature of the changes occurring in the crystal structure of the matrix, Guinier-Preston zones appeared at the initial stage of aging Cu-Be and Ni-Be alloys. After a five-hour tempering period at 200C single crystals of Cu-2% Be specimens were submitted to X-ray analysis. Length and arrangement of diffusion rods along the planes and the region of anomalous scattering were investigated. Some rods were not centrosymmetrical. Submicroscopic berillium-depleted or enriched regions were identified. The period of the Be-depletion of

Card 1/2

ACCESSION NR: AP4013329

the matrix, readily determined from reflections with a large Σh^2 showed an excess of 0.5 to 1% over the mean period. At a later stage of aging, the dislocation of atomic planes [101] towards [101] by means of γ causes the transformation of the cubic lattice into a "monoclinic" lattice. The value of the dislocation is equal to a minimum of $\pm 5^\circ$ which corresponds to $\gamma \approx 0.1$. In aging Al-Cu specimens Guinier-Preston zones are also identified. However, monoclinic distortions were not observed. The difference in the character of the matrix distortion in Al-Cu, Cu-Be and Ni-Be specimens was due to different elastic properties of the solid solution. Orig. art. has: 3 figures.

ASSOCIATION: Institut metallovedeniya i fiziki metallov Tsentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii imeni I.P. Bardina. (Institute of Metallurgy and Physics of Metals of the Central Research Institute of Ferrous Metallurgy)

SUBMITTED: 26Jul63

DATE ACQ: 26Feb64

ENCL: 00.

SUB CODE: ME

NO REF.SOV: 008

OTHER: 008

Card 2/2

TYAPKIN, Yu.D.; USIKOV, M.P.

Comparison of X-ray and electronographic data on the dimensions of crystal blocks in deformed stainless steel and nickel.
Fiz. met. i metalloved. 14 no.1:85-91 J1 '62. (MIRA 15:7)

1. Institut metallovedeniya i fiziki metallov Tsentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii.
(Steel, Stainless—Metallography)
(Nickel—Metallography)
(Electron microscopy)

SIMONOVICH, Ye. N.; TYAPKINA, N. P.

Handy modification of Fulleborn's method. Med. paraz. i paraz.
bol. no.6:677-680 '61. (MIRA 15:6)

1. Iz parazitologicheskogo otdela (zav. A. G. Revzina) sanitarno-
epidemiologicheskoy stantsii (glavnyy vrach L. K. Sakharova)
Leningradskogo rayona Moskvyy.

(HELMINTHOLOGY) (FECES—ANALYSIS)

BAGARYATSKIY, Yu.A.; TYAPKIN, Yu.D.

Simple device for eliminating the effect of the $K_{\alpha 2}$ -component
in reversal X-ray photographs of single crystals. ²Kristallografiia
6 no.5:774-775 S-0 '61. (MIRA 14:10)

1. Institut metallovedeniya i fiziki metallov.
(Radiography) (Crystals--Spectra)


S/126/62/014/001/007/018
E111/E135

AUTHORS: Tyapkin, Yu.D., and Usikov, M.P.

TITLE: Comparison of X-ray and electron-diffraction data on
the size of crystal blocks in deformed stainless
steel and nickel

PERIODICAL: Fizika metallov i metallovedeniye, v.14, no.1, 1962,
85-91

TEXT: In X-ray diffraction determinations of the size of
crystal blocks with the aid of analysis of the width or form of
interference lines the size referred to is that of "regions of
coherent scattering". The question arises as to whether this
characterises a dimension of the crystal structure or is associated
with an optical effect. To solve this problem the authors have
compared X-ray results with those of electron microdiffraction from
thin foils of the test samples, simultaneous electron-microscopic
investigation of these foils being carried out. The samples
studied were of an 18-8 type stainless steel and pure nickel,
subjected to cold-rolling with 96% reduction combined with heat
treatment and, where appropriate, electrolytic thinning. Some
Card 1/2



Comparison of X-ray and electron- ...

S/126/62/014/001/007/018
E111/E135

electron microscopic pictures (generally at 15000 magnification) were also obtained. The authors conclude that, allowing for systematic errors, the block-size determinations by electron- and X-ray diffraction give practically the same values. The greatest difference is with nickel, probably because the foil thickness could not be determined with sufficient accuracy. Thus, for deformed stainless steel and pure nickel the dimensions of coherent-scattering regions found from measurements of X-ray interference-line width determination correspond to dimensions of real crystal blocks having a relatively correct internal structure and disorientated relative to each other.

There are 2 figures and 2 tables.

ASSOCIATION: Institut metallovedeniya i fiziki metallov TsNIChM
(Institute of Science of Metals and Physics of
Metals, TsNIChM)

SUBMITTED: October 18, 1961

Card 2/2

TYAPKIN, Yu.D.; BAGARYATSKIY, Yu.A.; GAVRILOVA, A.V.

Study of changes in the crystalline structure of the alloy
nickel-beryllium at an early stage of aging. Kristallografiya
6 no.4:560-567 J1-Ax '61. (MIRA 14:8)

[. Institut metallovedeniya i fiziki metallov Tsentral'nogo
nauchno-issledovatel'skogo instituta chernoy metallurgii.
(Nickel-beryllium alloys)

18.1250 2208, 1416, 2808
24.7/00 (1160, 1142, 1153)

25892
S/070/61/006/004/004/007
E021/E406

AUTHORS: Tyapkin, Yu.D., Bagaryatskiy, Yu.A. and Gavrilova, A.V.

TITLE: Study of the changes in crystal structure of nickel-beryllium alloys in the early stages of ageing

PERIODICAL: Kristallografiya, 1961, Vol.6, No.4, pp.560-567 + 3 plates

TEXT: Single crystals of Ni-Be alloys containing 2.2% Be were quenched from 1100°C and aged at 425 or 500°C. The change in hardness (Rockwell B) with the total soaking time during tempering (in minutes and hours) is shown in Fig.1. The alloys were studied by X-ray analysis to elucidate the changes in structure. In the early stages of ageing (30 min to 2 hours at 425°C) the formation of Guinier-Preston zones considerably enriched in beryllium occurs. They are in a plate-form of 1 to 2 atomic layers thick and parallel to the (100) planes in the matrix. At the same time all the solid solution is less-rich in beryllium and approaches to the equilibrium state. The depleted matrix divides into separate blocks which at first have different orientations one from another. The blocks are elastically distorted. There are cracks with thickness of the order of 20 to 30 Å in the matrix

Card 1/3

25892

S/070/61/006/004/004/007
E021/E406

Study of the changes in crystal ...

along the (110) planes. At 500°C, the G.P. zones increase in size, regions with structure close to β phase appear and orientated rotation of the blocks occurs around one axis of the [100] type. This rotation reaches 8 to 10° after 32 hours at 500°C. The high hardness values of aged Ni-Be alloys is connected not with elastic distortion in the matrix but, in the main, with the division of the matrix into blocks and with their rotation relative to one another. All the observed changes result from the large difference in atomic volumes of the matrix and the precipitating phase (NiBe) which reaches 20%. There are 10 figures and 22 references: 16 Soviet and 6 non-Soviet. The three references to English language publications read as follows: M.Hansen, K.Anderko. Constitution of Binary Alloys. 290. New York - London, 1958; A.H.Geisler. Phase Transformation in Solids, 454. New York - London, 1951; R.B.Nicholson, G.Thoma, J.Natting. J.Inst.Metals, 87, 12, 429, 1959.

ASSOCIATION: Institut metallovedeniya i fiziki metallov TsNIChM
(Institute of Metals Science and Physics of Metals,
TsNIChM)

Card 2/3

BAGARYATSKIY, Yu.A.; TYAPKIN, Yu.D.

Supplementary structural data on the decomposition of
supersaturated solid solutions of titanium in nickel
and nichrome. Kristallografiia 5 no. 6:882-890 N-D '60.
(MIRA 13:12)

1. Institut metallovedeniya i fiziki metallov "TSentral'nogo
nauchno-issledovatel'skogo instituta chernoy metallurgii.
(Chromium-titanium-nickel alloys)
(Titanium-nickel alloys)

87805

18.7500 1418, 1413, 1145 S/070/60/005/006/003/009
EO21/E306

AUTHORS: Bagaryatskiy, Yu.A. and Tyapkin, Yu.D.

TITLE: Additional Structural Data on the Decomposition
of Supersaturated Solid Solutions of Titanium in
Nickel and Nichrome

PERIODICAL: Kristallografiya, 1960, Vol. 5, No. 6,
pp. 882 - 890 + 1 plate

TEXT: A detailed study has been carried out of the crystal
structure of nickel-titanium and nickel-chromium-titanium
alloys during the decomposition of the supersaturated solid
solutions from the initial stage when the titanium distribution
is nonuniform, to the final stage when a hexagonal phase is
precipitated. The binary alloys containing 11.8 and 14.1 at.%
titanium and the ternary alloys containing 16.5 at.% chromium
and 8.5 at.% titanium were investigated by ageing at 700 and
800 °C for various times. In the initial stage of
decomposition, microregions rich and poor in titanium were
formed. Both the titanium-rich and titanium-poor regions
Card 1/4

07805

S/070/60/005/006/003/009
E021/E306

X

Additional Structural Data on the Decomposition of Super-saturated Solid Solutions of Titanium in Nickel and Nichrome could deviate from cubic symmetry and could become tetragonal. In the binary alloy containing 14 at.% titanium and in the ternary alloy, the titanium-poor regions became tetragonal with a c/a ratio of 0.999 ± 0.001 . In the binary alloy containing 12% titanium, the titanium-rich regions were tetragonal with $c/a = 1.003 \pm 0.001$. Thus, the tetragonal structure was not caused by metastable Ni_3Ti compound, as has been proposed (Refs. 3, 7). When the precipitate of the hexagonal η -phase Ni_3Ti first appears, the regions of both types became tetragonal with the above axial ratios. The c-axes of all the regions were in the same direction so that the initial monocrystal as a whole appeared to be tetragonal. As precipitation of the hexagonal phase occurred, recrystallisation of the regions poor in titanium also occurred, which resulted in part or the whole of the monocrystal becoming

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E021/E306

Additional Structural Data on the Decomposition of Super-saturated Solid Solutions of Titanium in Nickel and Nichrome

polycrystalline. After several thousand hours the binary alloy with 14% titanium remained monocrystalline but the ternary alloy did not. The transformation to a polycrystal did not occur for the ternary alloy at 850 °C. Recrystallisation was explained by stresses arising in the monocrystal.

Acknowledgments are made to B.A. Mel'nikov for his assistance in the experimental part of this work.

There are 5 figures, 1 table and 20 references: 10 Soviet and 10 non-Soviet.



Card 3/4

87805
S/070/60/005/006/003/009
E021/E306

Additional Structural Data on the Decomposition of Super-saturated Solid Solutions of Titanium in Nickel and Nichrome

ASSOCIATION: Institut metallovedeniya i fiziki metallov
TsNIICHM (Institute of Metallurgy and
Physics of Metals of TsNIICHM)

SUBMITTED. April 19, 1960

Card 4/4

BAGARYATSKIY, Yu.A.; TYAPKIN, Yu.D.

More on X-ray diagrams with satellites. Kristallografiya 5 no.4:
535-539 Л-Ав '60. (MIRA 13:9)

1. Institut metallovedeniya i fiziki metallov Tsentral'nogo nauchno-
issledovatel'skogo institut chernoy metallurgii.
(Solutions, Solid-Spectra) (Alloys-Spectra)

TYAPUNINA, N.A.; PREDVODITELEV, A.A.

Investigations of spiral etching figures in cadmium polycrystals.
Izv. AN SSSR. Ser. fiz. 22 no.10:184-189 0 '58. (MIRA 12:3)

1. Moskovskiy gosudarstvennyy universitete im. M.V. Lomonosova.
(Cadmium--Etching)

TYAPUNINA, N. A.
USSR/Statistical Physics - Heat

D-4

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 11455

Author : Mikryukov, V.Ye.; Tyapunina, N.A.

Inst : Moscow State University, USSR

Title : Investigation of the Temperature Dependence of Heat Conduction, Electric Conductivity, and Specific Heat of Bi and Pb in a System of Bi-Pb Alloys.

Orig Pub : Fiz. metallov i metallovedeniye, 1956, 3, No 1, 31-41

Abstract : The heat conduction λ and the electric conductivity κ were measured by the Kohlrausch method by means of a setup, described earlier by one of the authors (Mikryukov, V.Ye. Uch. zap MGU, 1944, No 74, Vestn. MGU, 1949, No 3). The use of a balanced method for the measurement of the electric quantities made it possible to bring the accuracy of measurement of λ to 3%, and that of κ to 1%. Alloys of

Card 1/3

D-4

USSR/Statistical Physics - Heat

Abs Jour : Ref Zhur - Fizika, No 5, 1957, 11455

22 different concentrations were investigated at temperatures to 242°. The alloys with a lead concentration up to 33.67% have (at various temperature ranges for various concentrations) a positive temperature coefficient at a value of κ less than that of pure bismuth. These phenomena are explained by the presence of a solid solution of lead in the bismuth, and obviously, by the presence of an α phase. The dependence of λ on the temperature differs from the dependence of κ on the temperature, this being explained by the heat transfer not only the electrons, but also by the lattice. Assuming that for the electronic portion of the conduction the Wiedemann-Franz law is valid, the authors have subdivided the obtained values of λ into λ_{el} , which in pure metals diminishes, and increases in alloys, and λ_{lat} , which always diminishes with increasing temperature. However, this separation leads to the conclusions that λ_{lat} predominates over λ_{el} , and consequently

Card 2/3

D-4

USSR/Statistical Physics - Heat

Abs Jour : Ref Zhur - Fizika, No 5, 1957, 11455

doubt is expressed concerning the applicability of the Wiedemann-Franz law for this system. The experimental values of λ/C are in good agreement with the equation $\lambda/C = A \pm B/T$, where A and B are constants, C is the atomic heat capacity, T the absolute temperature. C was measured by the method of cooling in a Torovskiy-Bartenev type setup. A slow increase in C of lead and bismuth with increasing temperature was obtained. The isotherm of C has a minimum at 4.82% and a maximum at 65.70% lead. This can be explained by the influence of the α phase for small concentrations of lead and of the β phase for large concentrations of lead (C of the α phase is smaller than C of lead and bismuth, and that of the β phase is greater.)

Card 3/3

1. TYAPUNINA, N.A.

MIKRYUKOV, V.Ye.; TYAPUNINA, N.A.; CHERPAKOV, V.P.

Thermal and electric conductivities of bismuth-cadmium alloys.

Vest.Mosk.un.Ser.mat.,mekh.,astron.,fiz.,khim.11 no.1:127-136 '56

(MIRA 10:12)

1. Kafedra molekulyarnoy fiziki Moskovskogo universiteta.

(Heat--Conduction) (Bismuth-cadmium alloys--Electric properties)

ACC NR: AP6036999

(A,N)

SOURCE CODE: UR/0181/66/000/011/3442/3444

AUTHOR: Tyapkina, N. D.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Electric properties of p-type germanium strongly doped with beryllium

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3442-3444

TOPIC TAGS: germanium semiconductor, beryllium, impurity level, ionization, carrier density, impurity center, Hall effect, temperature dependence

ABSTRACT: This is a continuation of earlier investigations of the properties of beryllium-doped germanium (FTT v. 6, 2193, 1964, and earlier). The present investigation was aimed at determining the influence of the compensating impurity on the ionization energy of the impurity conductivity of the upper acceptor level (for non-hydrogenlike centers). To this end, temperature measurements were made of the carrier density and the electric conductivity in the temperature interval 300 - 55K. The procedure for obtaining the samples and of the temperature measurements was described in the earlier paper. The results show that for most samples the carrier density depends exponentially on the reciprocal temperature. The ionization energy of these samples at higher temperatures is calculated and the values are listed in a table. An analysis of the temperature dependence of the Hall mobility has shown that at low temperatures scattering of the carriers by charge centers predominates.

Card 1/2

ACC NR: AP6036999

The densities of the beryllium and of the phosphorus calculated from these data are also listed. In spite of the fact that the ionization energies were obtained for samples with different acceptor densities, the dependence of the ionization energy of the impurity conductivity on the concentration of the donor impurity agrees well with the standard theoretical formula. It is proposed on this basis that the change of the ionization energy occurring with increasing donor density is due to the action of the negatively singly-charged acceptors. At higher temperatures, the ionization energy is a function of the temperature, this being due to a reduction in the screening of the acceptors. The author thanks V. S. Vavilov, N. A. Penin, and V. V. Ostroborodova for a discussion of the results. Orig. art. has: 2 figures, 1 formula, and 1 table.

SUB CODE: 20/ SUBM DATE: 30May66/ ORIG_u REF: 005/ OTH REF: 003

Card 2/2

KUROVA, I.A.; KALASHNIKOV, S.G.; TYAPKINA, N.D.

Kinetics of extrinsic photoconductivity in n-germanium with gold.
Fiz. tver. tela 4 no.6:1503-1509 Je '62. (MIRA 16:5)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.
(Germanium) (Gold) (Photoconductivity)

a-c current with a slight increase in the number of minima observed

to 70 may indicate a change in the range of 00-100 Hz

"APPROVED FOR RELEASE: 08/31/2001

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APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001757710012-0"

38913

S/181/62/C04/006/019/051
B104/B112

24.7700

AUTHORS: Kurova, I. A., Kalashnikov, S. G., and Tyapkina, N. D.

TITLE: The kinetics of impurity conduction in Au-doped n-type germanium

PERIODICAL: Fizika tverdogo tela, v. 4, no. 6, 1962, 1503 - 1509

TEXT: The trapping of electrons on the E_4 level of gold in Au-doped n-type germanium was investigated at hydrogen temperature. The photoconduction of single-crystal specimens was determined in a He cryostat evacuated to $\sim 10^{-2}$ mm Hg. The heat emission of a crucible furnace was filtered through Ge and Sb-In filters. The damping periods of the photoconduction of the specimens were measured for two different directions of current passage. If the contacts of the samples are of high quality, the damping of photoconduction can be described by $\exp(-t/\tau)$. The coefficients γ_n of electron trapping on the E_4 level of gold were determined from measured values of τ , using the relation $\tau = (\gamma_n N_3)^{-1}$.

Card 1/8 2

The kinetics of...

S/181/62/004/006/019/051
B104/B112

(Table), where N_3 is the dark concentration of Au^+ ions. The temperature dependence of the trapping cross section is described by $s \cdot \exp(-E/kT)$, where E is the activation energy. The dependence of τ on T increases with increasing Sb content. This confirms the authors' conclusions as to the effect of electron adhesion to Sb ions. The temperature dependence of the trapping cross section shows no signs of a strong influence of the potential barrier around the centers upon the trapping processes. There are 5 figures and 1 table. f

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University imeni M. V. Lomonosov)

SUBMITTED: January 25, 1962

Card 2/2

KUROVA, I.A.; TYAPKINA, E.D.

Electrical conductivity of germanium containing lithium impurities
at low temperatures. Fiz. tver. tela 3 no. 12:3106-3109, 1960.
(NIIA 14:1)

1. Fizicheskii fakul'tet Moskovskogo gosudarstvennogo universiteta.
(Germanium--Electric properties)

ACCESSION NR: AP4041733

S/0181/64/006/007/2192/2194

AUTHORS: Tyapkina, N. D.; Krivopolenova, M. M.; Vavilov, V. S.

TITLE: Electric properties of beryllium doped p-type germanium

SOURCE: Fizika tverdogo tela, v. 6, no. 7, 1964, 2192-2194

TOPIC TAGS: germanium, beryllium, electric conductivity, carrier density, temperature dependence

ABSTRACT: In order to determine the upper acceptor energy level of beryllium in compensated and higher-resistivity germanium specimens, the authors measured the temperature dependence of the carrier density and of the electric conductivity of doped germanium plates 2 x 3 x 15 mm in the temperature range 300--55K. The compensating impurity was phosphorus. The plates were cut from the ingot perpendicular to the [111] crystal growth axis. The measurements were made in a double metallic cryostat. A null method was used with a

Card

1/4

ACCESSION NR: AP4041733

high-resistance potentiometer. The magnetic field reached 4600 Oe. Eight samples from four ingots were tested. The results show that in all samples the carrier density is exponential in the reciprocal temperature. The ionization energy was determined from the slope of plots of $\ln(pT)^{3/2}$ against $10^3/T$, and its value (0.064 ± 0.003 eV) is close to that obtained by others and also close to that calculation by the "helium" model, which is thus shown to be applicable to beryllium in germanium. Orig. art. has: 1 figure and 1 table.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova (Moscow State University)

SUBMITTED: 13Feb64

ENCL: 02

SUB CODE: SS, EC

NR REF SOV: 002

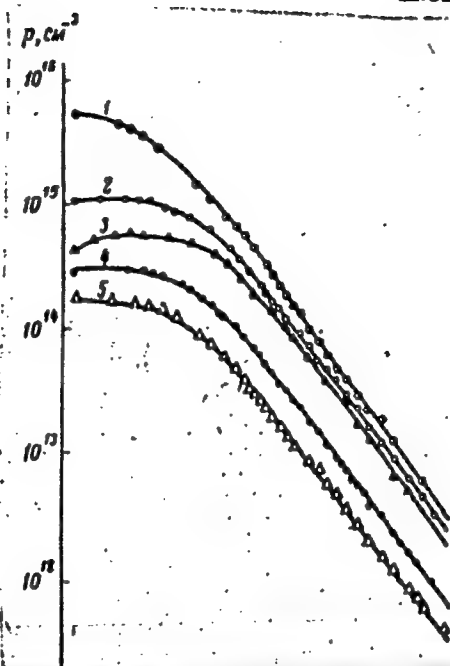
OTHER: 004

Card 2/4

ACCESSION NR: AP4041733

ENCLOSURE: 01

Dependence of carrier density on
the temperature for different
samples
Sam



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10¹
4.0 8.0 12.0 16.0 20.0 10¹
T°K

ACCESSION NR: AP4041733

ENCLOSURE: 02

Values of ionization energy in the
investigated samples

1	2	3	4
№ образца	Концентрация бериллия $N_{Be} \cdot 10^{-18}$ см ⁻³	Концентрация фосфора $N_P \cdot 10^{-18}$ см ⁻³	Ионизационная энергия I_E , эВ
157(2)	0.8	1.4	1.75
169(1)	0.83	1.5	1.81
169(5)	0.75	0.9	1.20
184(5)	1.2	1.4	1.17
181(6)	6.8	8.4	1.24

1 - sample no. 2-- beryllium density in 10^{-18} cm^{-3} , 3 - phosphorus density
4 - ionization energy, eV

Card: 4/4

87916

S/181/60/002/012/016/018
B006/B063

9.4300
24.7700

AUTHORS: Kurova, I. A. and Tyapkina, N. D.

TITLE: Electrical Conductivity of Lithium-doped Germanium at Low Temperatures

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 12, pp. 3106-3109

TEXT: Germanium specimens containing impurities of elements of the third and fifth groups have been studied repeatedly at the temperatures of liquid helium (Refs. 1-9), but there are no data available on the variations of ionization energy of lithium in germanium and on the electrical conductivity of lithium-doped germanium at low temperatures. This work was intended to fill this gap. As Li in Ge has a diffusion coefficient of $D=1.10^{-6}$ cm²/sec at 500°C, diffusion of Li into Ge at elevated temperature is the best method of introducing lithium. The germanium specimens were ground, etched, purified, and annealed in vacuo at 490°C for 4-8 hrs, depending on the size of the specimen. The annealing was done with an Li-Pb alloy, from which Li diffused into Ge. Starting materials were p-type and n-type germanium having a resistivity of

Card 1/3

87916

Electrical Conductivity of Lithium-doped
Germanium at Low Temperatures

S/181/60/002/012/016/018
B006/B063

~50 ohm.cm. The specimens were cut perpendicularly to the growth axis [111], and had a size of 3.4.15 mm. After the diffusion, the specimens were ground anew and etched with boiling H_2O_2 . Li-Pb spots were left as contacts. Lithium concentration varied from $2.3 \cdot 10^{14}$ and $2.9 \cdot 10^{15} \text{ cm}^{-3}$, resistivity at 300°K from 6.5 to 0.58 ohm.cm, and ionization energy from 9.3 to 9.4 kev. The Hall constant (R) and the variation of resistivity under the action of a magnetic field were measured as well. This was done in liquid helium; the temperature of the specimens was determined from the saturation pressure. The measurements in the magnetic field were made at 1200 oe; the electric field inside the specimens did not exceed 0.2 v/cm and thus remained within the range of validity of Ohm's law. The curves $\rho = f(1/t)$ and $R = f(1/T)$ are reproduced here. They show that only specimens with 6.5 and 4.45 ohm.cm and lithium concentrations of $(2.3 \div 3.9) \cdot 10^{14} \text{ cm}^{-3}$ have regular (exponential) functions, whereas specimens with higher lithium concentrations and lower resistivity exhibit an anomalous temperature dependence of ρ and R. $R(1/T)$ curves, for example, have peaks. The authors thank S. G. Kalashnikov for discussions, and A. I. Shal'nikov for putting his laboratory at their disposal. There are

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Electrical Conductivity of Lithium-doped
Germanium at Low Temperatures

J/10/00/002/012/016/018
B006/B063

2 figures, 1 table, and 23 references: 2 Soviet, 16 US, 1 German, 1 Dutch,
1 French, 1 Canadian, and 1 Czechoslovakian.

ASSOCIATION: Fizicheskiy fakul'tet Moskovskogo universiteta (Division
of Physics of Moscow State University)

SUBMITTED: May 5, 1960

X

Card 3/3

TYAPKINA, N.D.; KRIVOPOLENOVA, M.M.; VAVILOV, V.S.

Electric properties of p-germanium with beryllium impurity. Fiz. tver.
tela 6 no.7:2192-2194 J1 '64. (MIRA 17:10)

1. Moskovskiy gosudarstvennyy universitet imeni M.V.Lomonosova.

STUPAK, N.I.; TYAPKINA, K.F.

Logarithmic overlay for determining the depth of occurrence of
magnetized rock seams. Razved.i ohr.nedr 22 no.3:39-41 Nr '56.
(Prospecting--Geophysical methods) (MIRA 9:7)

BANAYAN E.G., inzh.; MOROZ, A.P., inzh.; TYR/SHKIN, V.G., kand.tekhn.nauk

Principal results of testing experimental and industrial GT-700-5 gas turbine systems manufactured by the V.I.Lenin Neva Machinery Plant.
Energomashinostroenie 9 no.12:24-28 D '63. (MIRA 17:1)

TYAPKINA, V. V. Cand. Chem. Sci.

Dissertation: "Structure of the Primary Layers on Silver and the Mechanism of Their Formation." Inst of Physical Chemistry, Acad Sci USSR, 5 May 47.

SO: Vechernyaya Moskva, May, 1947 (Project #17836)

117 APR 1968

2

MA

Orientation of crystals of silver and of potassium iodide on mica. N. K. Andruschenko, V. V. Tyapkina, and P. D. Dankov (Inst. Phys. Chem. Acad. Sci. U.S.S.R., Moscow). *Doklady Akad. Nauk S.S.S.R.* 59, 1113-16 (1948).—Electron-diffraction patterns by transmittance of 20-100-Å Ag films condensed in a high vacuum on unheated mica (freshly cleaved under water, showed, besides the Debye rings of face-centered cubic Ag, six spots on the (220) ring indicating orientation parallel to [111], normal to the surface of the mica; the (111) plane of Ag lies parallel to the (001) plane of the mica. Another type of diffraction pattern showed the presence of a single-crystal Ag film with a hexagonal lattice without change of the a. radius 1.44 Å.; the (001) plane of the hexagonal Ag lies parallel to (001) of mica. The findings fit a distribution wherein Ag atoms are disposed over the O atoms of the (001) plane of the monoclinic muscovite (a 5.17, b 8.94, c 20.12 Å., β 98.6°) in such a way that each Ag occupies a hole formed by 3 or 6 O ions; the b axis of the mica axis is parallel to one of the sides of the triangular configuration formed by Ag atoms, whereas the a axis forms an angle of 30° with the other 2 sides. In the case of KI, crystals on mica from a 0.1 N soln., the triangular crystals are disposed in such a way that one edge is parallel to the a axis, the other two form an angle of 30° with the b axis. In this case, I^- ions occupy only holes formed by 6 O^{2-} ions in the plane of the mica. N. Thon

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

FROM SYMBLYN

EXCHG 02

10000 MAY 06V 000

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00

EXCHG 02

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01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00

USSR/Chemistry - Silver
Chemistry - Oxidation

1 Mar 1948

PA4779

"Kinetics of the Oxidation of Silver by Molecular Oxygen in Electrical Gaseous Discharge," V. V. Tyapkina, P. D. Dankov, Lab Structures of Surface Layers, Inst Phys Chem, Acad Sci USSR, 3 pp

"Dok Akad Nauk SSSR, Nova Ser" Vol LIX, No 7

Authors' experiments show that in oxidation of layers of silver, previously condensed in volume in electrical gas discharge, film of cubic oxide of Ag_2O formed with cuprite-type lattice. Thus discovered that active particles arising in conditions of electrical discharge in oxygen capable of leading to thorough

4779

USSR/Chemistry - Silver (Contd) 1 Mar 1948

oxidation of silver. To explain mechanism of phenomenon of formation of polymolecular layers of the oxide, authors studied dependence of the speed of oxidation of silver on the time of processing it in the electrical discharge. Submitted by Academician V. A. Kistjakovskiy, 20 Dec 1947.

TYAPKINA, V. V.

L770

M

•Electron-Diffraction Investigation of Primary Sulphide Films on Silver. V. V. Tyapkina and P. D. Dankov (Doklady Akad. Nauk S.S.S.R., 1948, 66, (5), 1461-1463).—[In Russian]. Thin polycryst. Ag films condensed *in vacuo* on celluloid were exposed for a few hr. at 20° C. to wet H₂S contaminated by air. Films 100 Å thick entirely converted to sulphide were studied by electron diffraction (electron velocity 40-45 kV.). It was found that the primary sulphide has the form of minute crystals of the acanthite type (rhombic modification of Ag₂S). Whereas the orientation of Ag atoms in the oxidation of f.c.c. Ag crystals to Ag₂O remains unchanged, the cubic structure is changed to rhombic in the formation of Ag₂S. Thus, even the apparently cubic argentite (mineral form of Ag₂S) is always found in the rhombic acanthite form and takes the cubic form only above 180° C. This difference between Ag₂O and Ag₂S is due to a change in the magnitude of the radius of the anion ($r_s = 0.34$), whereby the non-cubic modification becomes the equilibrium form. 10 ref.—A. G.

TYAFKINA, V. V. and DANKOV, P. D. (DECEASED)

"Kinetic of Oxidation of Silver by Molecular Oxygen and in an Electric Discharge in a Gaseous Environment", a report presented at the 4th Conference on Chemical Physics, Paris, 1956.

L 36440-66 ENT(m)/T/ENP(t)/ETI IJP(c) JW/JD

ACC NR: AP6018070

SOURCE CODE: UR/0676/66/040/005/1064/1069

AUTHOR: Tyapkina, V. V.; Guseva, N. S.

ORG: Institute of Physical Chemistry, Academy of Sciences SSSR (Institut fizicheskoy khimii akademii nauk SSSR)

TITLE: Investigation of the interaction processes between the surface¹ of silicon and fluorine and hydrogen fluoride²

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 5, 1966, 1064-1069

TOPIC TAGS: surface property, silicon, nonferrous metal, fluorine, fluorine compound, silicon single crystal

ABSTRACT: The kinetics of interaction of the oxidized silicon surfaces with fluorine and hydrogen fluoride was studied at room temperature using the microbalance technique. The object of the work was to fill the gap in the pertinent literature. Samples of silicon n-type single crystals were cut out along the 111-plane, polished, etched with a HNO_3 -HF mixture, and washed with double distilled water. The surface of the silicon samples was oxidized either by treatment with dry oxygen

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UDC: 541.124/.128

L 36440-66

ACC NR: AP6018070

at 1100°C (oxide layer thickness 0.15-0.20 μ) or treatment with steam in argon at 1200°C (oxide layer thickness 1-2 μ). Fluorine pressures varied from 11 to 44 mm Hg and the HF pressure was less than 100 mm Hg. In the range up to 0.5 g, the accuracy of the microbalance measurements were approximately $1.8-2 \times 10^{-6}$ g. Prior to treatment with HF, samples of oxidized silicon were treated with fluorine. The dependence of the removal of the oxide layer from the silicon surface upon the duration of the HF treatments is graphed. In the case of surface oxidation with dry oxygen, pretreatment with fluorine had very small effect on the rate of oxide removal by subsequent treatment with HF. In the case of surface oxidized with steam in argon, the average rate of oxide removal was $0.04 \cdot 10^{-6}$ g/cm²:min in the case of pretreatment with fluorine and $12 \cdot 10^{-6}$ g/cm²:min without such pretreatment. The effect of the pretreatment with fluorine is traced to the removal of moisture from the oxide layer. Orig. art. has: 7 figures.

SUB CODE: 07/ SUBM DATE: 19Dec64/ ORIG REF: 003/ OTH REF: 003

20/

Card 2/2 *gd*

· TYAPKINA, Ye.

Problems in the further intensification of agricultural production.
Vop. ekon. no.2:37-45 F '62. (MIRA 15:1)

(Agriculture)

TYAPKINA, Ye.

Differentiation of purchase prices by zones. Vop. ekon. no.7:
143-148 J1 '61. (MIRA 14:7)

(Produce trade)

TYAPKINA, Yevdokiya Petrovna; RYBAKOVA, V.D., red.

[Collective-farm income and its distribution] Kolkhoznye
dokhody i ikh raspredelenie. Moskva, Ekonomika, 1964. 158 p.
(MIRA 17:3)

TYAPKOV, S.S.

Increasing the efficiency of drawing machines. Bul. TSIIN tevet.
met. no.9:23-30 '58. (MIRA 11:6)

(Drawing (Metalwork))

VULITSKIY, Z.; TYAPTIN, A.

More about interdepartmental control. Fin.SSSR 21 no.6:
73-75 Je '60. (MIRA 13:6)

1. Revizor Krymskoy kontory Gosbanka (for Vulitskiy). 2. Glavnyy
kontroler-revizor Kontrol'no-revizionnogo upravleniya Ministerstva
finansov USSR po Krymskoy oblasti (for Tyaptin).
(Crimea--Auditing)

TIATTIN, M.T.

Fisheries--Estonia

On 1952's quota. Ryb.khoz. 28, no. 2, 1952.

9. Monthly List of Russian Accessions, Library of Congress, MAY 1952 ~~1953~~ Uncl.

KOLYANDR, L.Ya.; TYAPTINA, M.I.; FOMENKO, G.M.

Composition and yield of coal-tar xylene. *Xoks i khim.* no.8:
41-44 '60. (MIRA 13:8)

1. Khar'kovskiy nauchno-issledovatel'skiy uglekhimicheskiy institut.
(Xylene)

S/068-x/60/000/008/001/003
E071/E435

AUTHORS: Kolyandr, L.Ya., Tyaptina, M.I. and Fomenko, G.M.
TITLE: The Composition and Yield of Xylol¹, a By-Product of
the Coal Carbonization Process

PERIODICAL: Koks i khimiya, 1960, No.8, pp.41-44

TEXT: The composition of technical xylol, a by-product of the coal carbonization process, was little investigated, mainly due to lack of reliable methods and the lack of demand for the individual isomers. In the paper, the yield and composition of xylol produced on 9 coking works was investigated using mean dynamic samples for the fourth quarter of 1957. In addition to xylol fraction a part of xylol remains in heavy benzole and solvent naphtha; it was therefore necessary to determine the content of xylol in the above two products (Table 1). The determination of the xylol content was done by careful rectification using a column equivalent to 30 theoretical plates at reflux ratio of 5-6; whereupon the fraction boiling at 135.0 to 144.5°C was considered as xylol. The distribution of xylol between the individual products was found to be as follows: 78.8% pure xylol fraction

Card 1/3

S/068-x/60/000/008/001/003
E071/E435

The Composition and Yield of Xylole, a By-Product of the Coal Carbonization Process

(GOST 10465-39), 13.1% solvent naphtha (GOST 1923-50) and 8.1% heavy benzole. The content of the individual isomers in technical xylole as well as in xylole separated from solvent naphtha and heavy benzole was determined by the spectrophotometric method. In addition, paraxylole was determined cryoscopically and methaxylole was determined by the usual method through trinitromethaxylole. Non-aromatic admixtures (paraffins and naphthenes) were determined spectrophotometrically (the difference between 100 and the sum of determined aromatics) and by the usual method; sulphonation with 98% sulphuric acid (at 20° for 20 min). The content of toluol was determined by rectification. The composition of xyloles from the individual works was found to be similar and is given in Table 2. On the average, the composition of technical xylole was as follows, in %: ethylbenzene 4.8; paraxylene 21.1; methaxylene 58.0; orthoxylene 13.5; toluene 1.3; non-aromatic and other admixtures 1.3. The composition of xyloles separated from solvent naphtha and heavy benzole was, on average, as follows: 3.6% ethylbenzene; Card 2/3

S/068-x/60/000/008/001/003
E071/E435

The Composition and Yield of Xylol, a By-Product of the Coal
Carbonization Process

16.5% paraxylene; 48.5% methaxylene; 28.5% orthoxylene;
2.9% unsaturated and other admixtures (for individual work see
Table 3). The average overall composition of xylol was:
4.5% ethylbenzene; 20.1% paraxylene; 56% methaxylene;
17% orthoxylene; 2.4% unsaturated and other admixtures; it
differs from the equilibrium composition (given in Table 4).
The following yield of the individual isomers was obtained from
raw benzole (mean sample for the fourth quarter 1957):
0.23% ethylbenzene; 0.97% paraxylene; 2.70% methaxylene;
0.82% orthoxylene. There are 4 tables and 5 references:
3 Soviet, 1 English and 1 German.

ASSOCIATION: UKhIN

Card 3/3

KOLYANDR, L. Ya.; TYAPTINA, M.I., FOMENKO, G.M.

Impurities in pure benzene. Koks i khim. no.3:42-47 '60.

(MIRA 15:6)

1. Ukrainskiy uglekhimicheskiy institut.
(Benzene)

Tyaptina M.I.

AUTHORS: Kolyandr, L.Ya., Orlov, M.L., Tyaptina, M.I. and Pomenko, G.M. 68-58-2-10/21

TITLE: Production of High-quality Benzole for Organic Synthesis (Polucheniye vysokokachestvennogo benzola dlya organicheskogo sinteza)

PERIODICAL: Koks i Khimiya, 1958, Nr 2, pp 44 - 46 (USSR)

ABSTRACT: A new standard for benzole for synthesis I, introduced in September, 1957, required a very low concentration of thiophene (0.005%). An investigation was carried out in order to study the process of purification of benzole-toluole fraction up to the limits required for the benzole synthesis I and to develop the optimum scheme for the production of such benzole. The investigation of the appropriate fractions from Zaporozhe and Bagleysk Coke Oven Works (Table 1) under laboratory conditions was carried out. At first, a direct washing of the whole fractions was tested (Table 2); the results obtained indicated that this method of purification is unprofitable. Therefore, the following investigations were carried out:

- 1) Separation of BTX (mixed) fraction into a narrow benzole fraction and a toluole-xylole fraction with their subsequent treatment to a required purity;
- 2) The usual washing of mixed fraction to limits required to obtain pure products

Card1/2

Production of High-quality Benzole for Organic Synthesis 68-58-2-10/21

(bromine numbers benzole ≤ 0.6 ; toluole ≤ 0.3) with subsequent washing of pure benzole to the required standard. Experimental results are given in Tables 3-5. It is concluded that for Southern works, the second scheme is most suitable, but for Eastern works, which deal with low-sulphur products, the first scheme may be more rational. It is pointed out that both methods of production of benzole for synthesis are imperfect and that further research is necessary. There are 5 tables and 6 references, 2 of which are Soviet, 2 English, 1 French and 1 German.

ASSOCIATION: UKhIN

AVAILABLE: Library of Congress
Card 2/2

1. Benzole - Production
2. Benzole - Purification
3. Benzole - Synthesis

SOV/68-58-11-13/25

AUTHORS: Kolyandr L.A., ~~Tyaptina M.I.~~, and Fomenko G.M.

TITLE: The Composition of Crude Benzole (Sostav Syrogo Benzola)

PERIODICAL: Koks i Khimiya, 1958, Nr 11, pp 38-42 (USSR)

ABSTRACT: Chemical composition of crude benzole is discussed taking as an example of crude benzoles obtained by coking of Donets coals. The influence of coking temperature within ranges 950, 1000-1050 and 1050-1100°C on the composition of crude benzole is given in Table 1, typical composition of raw benzole in Table 2, the distribution of unsaturated hydrocarbons between the individual benzole fractions in Table 3, and its dependence on coking temperature in Table 4; the types of sulphur compounds and their distribution between various benzole fractions in Tables 5-7, the distribution of saturated compounds between various benzole fractions in Table 8 and their

Card 1/2

The Composition of Crude Benzole

SOV/68-58-11-13/25

influence on the properties of benzole and xylol
fractions in Tables 9 and 10 respectively.
There are 10 tables and 5 references (3 Soviet and
2 German)

ASSOCIATION: UKhIN

Card 2/2

S/068/60/000/003/002/003
E071/E233

AUTHORS: Kolyandr, L. Ya., Tyaptina, M. I., and Fomenko, G.M.
TITLE: Impurities in Pure Benzole
PERIODICAL: . Koks i khimiya, 1960, No. 3, pp. 42-47

TEXT: The nature of impurities present in pure benzole and sensitivity of methods of their determination are discussed in the light of the author's own and literature data. The sensitivity of methods of determination of the individual sulphurous compounds was tested by using samples of pure benzene with addition of known proportion of the corresponding sulphur compounds (thiophene - Table 1; elemental sulphur - Table 2; mercaptans - Table 3). It is concluded that the sensitivity of methods of determining the individual sulphur compounds as percent of sulphur is as follows: Thiophene (isatin tests) down to 0.00005% elemental sulphur (copper strip) - down to 0.0005%; mercaptans (doctor's test) - down to 0.0002; carbon disulphide (reaction with diethylamine) - down to 0.0001%. The main impurities in pure benzole are hydrocarbons of paraffin and cycloparaffin series, n-heptane, cyclohexane, dimethylpentanes and methyl cyclopentane (Table 4). The

Card 1/2

S/068/60/000/003/002/003
E071/E233

Impurities in Pure Benzole

determination of non-aromatic impurities can be done cryoscopically using the following formula: $x = 1.80 \cdot \Delta t$, where x - content of non-aromatic hydrocarbons in wt.%, and Δt - temperature depression. The accuracy of the equation in which the mean molecular weight of non-aromatic impurities was taken as 92 is sufficient for the purpose (Table 5). On careful rectification non-aromatic compounds are concentrated in the head and final fractions (Table 6) and by combining various fractions the quality of the pure benzole can be controlled (Table 7). The influence of the toluene content on the boiling range of benzole is shown in Table 8. By limiting the boiling range of benzene to 0.5-0.6°C, the content of toluene below 0.1% can be guaranteed. The content of nitriles in various pure benzoles expressed in mg of ammonia per litre (Table 9) varies from 5-10 mg/l. In the content of naphthalene in pure benzole on average about 0.01%. The synthesis grade of benzole obtained by redistillation the naphthalene content should not exceed 0.001%. There are 9 tables and 18 references: 5 Soviet and 13 non-Soviet.

ASSOCIATION: UKhIN
Card 2/2

KOLYANDR, L.Ya.; TYAPTINA, M.I.; RASHKEVICH, I.Ya.; OMELECHKIN, K.S.
ITKINA, R.A.

Composition of crude benzol and the quality of pure products.
Koks i khim. no.4:43-45 '61. (MIRA 14:3)

1. Khar'kovskiy nauchno-issledovatel'skiy uglekhimicheskiy institut
(for Kolyandr, Tyaptina). 2. Dnepropetrovskiy koksokhimicheskiy
zavod (for Rashkevich, Omelechkin, Itkina).
(Benzene) (Coke industry—By-products)

TYAPUGIN, Nikolay Petrovich, kand.med.nauk, zaslužennyy vrach RSFSR;
GOTOVTSEV, P.I., red.; ZUYEVA, N.K., tekhn.red.

[Stammering] Zaikanie. Izd.3, perer. i dop. Moskva, Gos.
izd-vo med.lit-ry Medgiz, 1960. 141 p. (MIRA 13:12)
(STAMMERING)

TYAPUGIN, N.P.

KUTEPOVA, A.

"Care for mental patients in a psychoneurological hospital." N.P.
Tiapugin. Reviewed by A. Kutepova. Zhur.nevr.i psikh. 55 no.6:
~~478-479~~ 55. (MLRA 8:8)
(TIAPUGIN, N.P.) (HOSPITALS, PSYCHIATRIC)

TYAPUGIN, N. P.

[Care of the mentally ill in a psychoneurological hospital] Ukhod
za psikhicheski bol'nymi v psikhonevrologicheskoi bol'nitse.
Moskva, Medgiz, 1954. (MLRA 8:2)
(Mentally ill--Care and treatment)

"APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001757710012-0

APPROVED FOR RELEASE: 08/31/2001

CIA-RDP86-00513R001757710012-0"

S/126/62/014/004/013/017
E193/E383

AUTHORS: Tyapunina, N.A., Predvoditelev, A.A., Yurasova, V.Ye.,
Gusarova, S.M. and Zakharov, V.M.

TITLE: Distribution of impurities and dislocations in cadmium
crystals

PERIODICAL: Fizika metallov i metallovedeniye, v. 14, no. 4,
1962, 582 - 588

TEXT: It has been established by Borovskiy et al (Kristallografiya, 1962, 7, no. 4) that zinc tends to segregate at dislocations in cadmium crystals, the points of emergence of dislocations on the surface of a polished specimen being revealed by etching pits. It has also been found that in some specimens two systems of etch figures can be observed, their dimensions being about $1 - 2 \mu$ and about 0.1μ , respectively. The object of the present investigation was to elucidate the causes of the appearance of these two systems of etch figures by studying the effect of the zinc concentration on the size and shape of the etching pits. The concentration of zinc in the experimental cadmium-zinc alloy specimens ranged from 0.01 - 10%. Electrolytic
Card 1/4

S/126/62/014/004/015/017
E193/E383

Distribution of impurities

and ion-bombardment etching techniques were used to produce the etching pits. The etch figures were examined with the aid of an optical microscope in the case of alloys containing less than 4% Zn, an electron microscope being also used to examine the alloys with lower Zn contents. In some cases, cine-photography was employed to study the process of formation of etch figures. The angle between the surface of the polished specimen and the basal plane (0001) of cadmium ranged from 0 - 90°. Rows of small etching pits were observed in specimens with the zinc content lower than 1%. Both small and coarse etching pits were formed as the zinc concentration increased. In specimens with 4% Zn the formation of isolated hexagonal pits was observed. Starting from the zinc concentration of 6%, plate-like pits of regular hexagonal shape formed in the (0001) plane were observed only. The density of the small and coarse etch figures was practically independent of the zinc concentration, which supported the view that the etch pits corresponded to the points of emergence of the dislocations on the surface of the specimens. The results of measurements of the etch pits formed on various alloys are reproduced in Fig.6, where the relative number ($n_i / \sum n_i$) of pits in a given specimen

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Distribution of impurities

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is plotted against the etch-pits dimensions (d, μ), the various graphs relating to alloys with the Zn content indicated. Comparison of these distribution curves with the constitution diagram of the cadmium/zinc system shows that alloys with a Zn content lower than the limit of its solid solubility in Cd at room temperature are characterized by one system of (small) etch figures. Two systems of etch figures are formed in two-phase alloys, each with a characteristic size of etching pit. It can be postulated that the system of the coarse etch figures corresponds to dislocations decorated by the second-phase precipitates, whereas the fine etch figures correspond to dislocations with increased solute concentration, i.e. to Cottrell atmospheres. The results of the present investigation were taken as a proof that the presence of dislocations considerably affected the distribution of Zn in the alloys studied. There are 6 figures and 1 table.

ASSOCIATION:

Moskovskiy gosudarstvennyy universitet im.
M.V. Lomonosova (Moscow State University im.
M.V. Lomonosov)
October 2, 1961

SUBMITTED:
Card 3/4

ACC NR: AF6036988

(A,N)

SOURCE CODE: UR/0181/66/008/011/3375/3377

AUTHOR: Belozerova, E. P.; Tyapunina, N. A.; Kazak, F. A.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvenny universitet)

TITLE: Frequency dependence of the internal friction of lithium fluoride single crystals

SOURCE: Fizika tverdogo tela, v. 8, no. 11, 1966, 3375-3377

TOPIC TAGS: lithium fluoride, internal friction, crystal dislocation phenomenon, plastic deformation

ABSTRACT: In view of the contradictory published data on the frequency dependence of internal friction in the kilocycle frequency range, the authors have measured the internal friction in lithium fluoride single crystals using the method of double piezoelectric oscillator (Ye. G. Shvidkovskiy and A. A. Durgaryan, Nauchn. dokl. vysshey shkoly no. 5, 211, and 217, 1958). The frequency range covered was from 40 to 300 kcs and harmonics. The results showed a linear dependence of the internal friction on the frequency, which agrees well with the dislocation theory of dynamic losses for the case when the frequency of the driving force is much lower than the natural frequency of the dislocation loop. The linear dependence of the frequency remains if the samples are plastically deformed before the tests. A study of the dependence of the internal friction on the prior deformation at different frequencies has shown

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ACC NR: AP6036988

that with increasing frequency the maximum of internal friction shifts toward the region of larger deformations. The results were similar for the fundamental and for the third harmonics. This shift can also be explained from the point of view of dislocation theory. The authors thank Ye. G. Shvidkovskiy for continuous interest, valuable advice, and hints. Orig. art. has: 2 figures and 1 formula.

SUB CODE: 20/ SUBM DATE: 07Feb66/ ORIG REF: 004/ OTH REF: 004

Card 2/2

L 06440-67 EWT(m)/EWP(t)/ETI IJP(c) JD
ACC NR: AP6026719 SOURCE CODE: UR/0181/66/008/008/2494/2496

AUTHOR: Tyapunina, N. A.; Shaskol'skaya, M. P.; Lerner, M. D. 43
8

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet); Moscow Institute of Steel and Alloys (Moskovskiy institut stali i splavov)

TITLE: Change in the photosensitivity of silver chloride crystals under the influence of high-frequency vibration and dependence of internal friction on prior illumination of the crystal 21 17

SOURCE: Fizika tverdogo tela, v. 8, no. 8, 1966, 2494-2496

TOPIC TAGS: silver chloride, photosensitivity, hf vibration, internal friction

ABSTRACT: AgCl single crystals in glass ampoules were subjected to longitudinal mechanical vibrations in a resonance oscillator at a frequency of ~100 kc. The amplitude of relative deformation was varied from ~0.5 to ~30 g/mm². The maximum stresses during the vibration did not exceed the yield stress of AgCl. It was noted that if the ampoule was not protected from daylight, the colors of the crystals darkened. This increased photosensitivity persisted after the vibration was discontinued. Following the action of light, the internal friction not only decreased in magnitude, but its dependence on the deformation amplitude changed. It is concluded that the photosensitivity of AgCl crystals increases if they are subjected to high-frequency vibration, and that prior illumination of the crystals affects the internal friction.

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ACC NR: AP6026719

Orig. art. has: 2 figures.

SUB CODE: 20/ SUBM DATE: 18Feb66/ ORIG REF: 002/ OTH REF: 001

Card 2/2 *pls*

L 18750-66 EMT(1)/T IJP(c) GG

ACC NR: AP6003781

SOURCE CODE: UR/0181/66/008/001/0166/0171

AUTHORS: Zagoruyko, N. V.; Reznikov, B. A.; Tyapunina, N. A.;
Khamidova, N. I.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy
gosudarstvennyy universitet)

TITLE: Occurrence and motion of ^{21.4.11.55}dislocations in NaCl crystal under
the influence of thermoelastic stresses

SOURCE: Fizika tverdogo tela, v. 8, no. 1, 1966, 166-171

TOPIC TAGS: sodium chloride, crystal dislocation phenomenon,
thermoelasticity, stress distribution

ABSTRACT: The main purpose of the study was to determine whether
the dislocation structure of a crystal is affected by non-uniformity
of the temperature field and heating or cooling conditions and to
determine the connection between the dislocation structure and the
thermoelastic stresses which occur in NaCl crystals of small size
heated to low temperatures (from room temperature to 40 -- 180C).

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1. 18750-66

AOC NR: AP6003781

2

These conditions are least favorable for the occurrence of considerable stresses. The crystals contained 10^4 cm^{-2} dislocations in the initial state. The dislocations were disclosed by selective etching. The thermoelastic stresses were measured by a polarization-optical method. Measurements of the residual stresses in the samples show that even for the small sizes ($\sim 3 \times 5 \times 20 \text{ mm}$) and low temperatures, the thermoelastic stresses that can arise exceed the elastic limit and cause motion and multiplication of dislocations. The authors thank Ye. G. Shvidkovskiy for interest in the work and a discussion of the results, and V. L. Indenbom for valuable advice and remarks. Orig. art. has: 5 figures and 2 formulas.

SUB CODE: 20/ SUEM DATE: 22Apr65/ ORIG REF: 010/

Card 2/23m

"APPROVED FOR RELEASE: 08/31/2001

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CIA-RDP86-00513R001757710012-0"

TYAPUNINA, N.A.; ZINENKOVA, G.M.

Study of dislocations in tabular cadmium single crystals.
Kristallografiia 9 no.6:893-901 N-D '64.

(MIRA 18:2)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

PREDVODITELEV, A. A. and TYAPUNINA, N. A.

"Role of Increase of Dislocations in Plastic Deformation Process."

report presented at the 3rd Conference of Higher Educational Institutes on Strength and Plasticity of Metals, Petrozavodsk State University, 24-29 June 1963

12/97-01
ACCESSION NR: AP3000773

S/0070/63/008/003/0405/0412

AUTHOR: Tyapunina, N. A.; Pradvoditelev, A. A.; Marty*nyuk, G. K.; Shvidkovskiy, Ye. G.

TITLE: Investigation of dislocation structure and the propagation of dislocations in cadmium crystals

SOURCE: Kristallografiya, v. 8, no. 3, 1963, 405-412

TOPIC TAGS: Frank-Read source, hexagonal crystals, Cd, dislocations, Burgers vector, slip band

ABSTRACT: Because the literature is unclear on how points are provided for pinning dislocations to supply a beginning for a Frank-Read source, the authors have undertaken an analysis of possible intersections and interactions of dislocations in hexagonal crystals. They have made experimental tests by selective etching to determine dislocations, and they conclude that hexagonal crystals have favorable conditions for the formation of points that pin dislocations during plastic deformation. They conclude further that the restraint on dislocations to move in planes of the prism or the second-order pyramid considerably exceeds the restraint on movement in the basal plane, which impedes transverse slipping. Thus, during plastic deformation in hexagonal crystals, dislocations appear to

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L 12797-63

ACCESSION NR: AP3000773

occur chiefly by operation of a Frank-Read source, and this leads to the experimentally observed localization of slip bands. Orig. art. has: 4 figures, 3 formulas, and 2 tables.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet im. M. V. Lomonosova
(Moscow State University)

SUBMITTED: 06Jul62

DATE ACQ: 21Jun63

ENCL: 00

SUB CODE: 00

NO REF SOV: 007

OTHER: 014

Card 2/2

SHVIDKOVSKIY, Ye. G.; TYAPUNINA, N. A.; BELOZEROVA, E. P.

Effect of an electric field on the behavior of charged dislocations. Kristallografiya 7 no.3:471-472 My-Je '62.
(MIRA 16:1)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

(Dislocations in crystals)
(Electric fields)